

STANDARD FORM NO. 64

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Office Memorandum • UNITED STATES GOVERNMENT

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TO : The Files

DATE: 16 December 1957

FROM :

[Redacted]

SUBJECT: Trip Report, Contract RD-103, Task Order 3

1. On 2 December 1957, a visit was made to the [Redacted] in Los Angeles, California. The primary purpose of this visit was to demonstrate the AS-4 equipment to two [Redacted] civilian personnel; [Redacted] The [Redacted] organization representatives present at the conference were: [Redacted]

2. [Redacted] opened the meeting with a rather complete description of the operational and technical characteristics of the AS-4A system. Following the discussion, the group went to the laboratory where the equipment is presently about 80% complete.

3. A demonstration of the AS-4A equipment operating from the high speed tape reader through the entire system and perforating on the Soroban high-speed perforator was conducted. During the operation, a noise generator was set to completely "knock out" one channel of QFM information. When the noise was inserted into the circuit, the system made three character errors; then the error correcting system reconstituted the missing channel and the system continued to operate error free from that point.

4. The gentlemen from the [Redacted] were rather impressed and said that they would like to have the opportunity to participate in the evaluation of this system. It was suggested that they initiate a formal letter through channels including this request.

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MEMORANDUM FOR THE RECORD

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FROM:

SUBJECT: Los Angeles Trip for maintenance of two KX-3 equipments for use with AS-4A Transmitter and Receiver Units.

On my arrival to the found that the two KX-3's were out of order.

Number 1 KX-3, I was unable to zeroize, without the master alarm going into the alarm condition. Found filament to cathode short alarm circuit activating the master alarm, although there were no indications of any filament to cathode shorts. Found voltage divider network from this latter circuit biasing its output tube in a conducting condition. Although resistors were within their rated tolerances, the tolerances were all in the same direction, which was enough to activate master alarm. To correct, the circuit had to be rebuilt. (Alarm circuits in this unit are very critical.) After this correction, the KX-3 was zeroized. Due to a bad gate tube in one of the key generators, the cipher verification alarm was indicated. After it was replaced, set then worked properly.

Number 2 KX-3 seemed to work properly if the zeroize and start button was operated manually, but as soon as we put it on the automatic, from the AS-4A transmitter data unit, it would indicate cipher verification alarm. We found the reset diode in the power supply had developed a high forward resistance. Replaced with a silicon diode 1N-67-A and the trouble was cleared (crystal diodes in this set seem to go bad after one hundred or so starts). Suggest these diodes be replaced with silicon diodes before units be put into service in the field.

Found the KX-3's worked properly with varying line voltage from 107 volts up to 125 volts. Found it more sensitive to lower line voltages and -20 bias supply voltages very critical.

When I left we had AS-4A transmitter data working into a KX-3 in transmit condition, feeding another KX-3 in the receive condition. They were both in good working condition.

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